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Iqbal Malik, Editor

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ISCHAEMIC HEART DISEASE

Failure to diagnose angina is dangerous to the patient's health ► In a study of > 11 000 patients, 1158 (11.4%) participants developed angina, and 813 (70%) had no evidence of diagnosis by a doctor at the time of the initial report. Undiagnosed patients had an increased risk of impaired physical functioning (age and sex adjusted odds ratio of 2.36, 95% confidence interval (CI) 1.91 to 2.90) compared with those who had neither angina nor myocardial infarction throughout follow up. Those with undiagnosed angina and an abnormality on ECG (15.5%) had an increased risk of death (hazard ratio 2.37, 95% CI 1.16 to 4.87). This was similar to the rate in those with diagnosed ischaemic heart disease.

▲ **Hemingway H**, Shipley M, Britton A, Page M, Macfarlane P, Marmot M. Prognosis of angina with and without a diagnosis: 11 year follow up in the Whitehall II prospective cohort study. *BMJ* 2003;**327**:895.

Higher risk ACS patients with troponin < 0.06 µg/l ► In a prospective cohort of patients with > 6 hours pain and possible acute coronary syndrome (ACS), only clinical assessment, ECG, and creatine kinase values up to 12 hours were used to make clinical decisions. Samples were stored for high sensitivity C reactive protein (CRP) and troponin T measurements. Of the patients discharged home, 382 were troponin T negative, of whom two died, two had a myocardial infarction, and seven were rehospitalised for unstable angina. A positive CRP test result (> 0.3 mg/dl) was associated with future clinical events, as was a positive test (> 13 mm/h) for erythrocyte sedimentation rate (ESR). In multivariate analyses, prior use of nitrates (hazard risk (HR) 5.9, 95% CI 1.7 to 20.1; p = 0.004) and positive results for both CRP and ESR (HR 5.1, 95% CI 1.5 to 18.2; p = 0.01) were independent predictors of future adverse clinical events. Event rate was 9.3% at six months with both markers positive versus 1–2% otherwise.

▲ **Bholasingh R**, Cornel JH, Kamp O, van Straalen JP, Sanders GT, Dijksman L, Tijssen JGP, de Winter RJ. The prognostic value of markers of inflammation in patients with troponin T–negative chest pain before discharge from the emergency department. *Am J Med* 2003;**115**:521–8.

Postcode lottery: New York style ► Revascularisation after acute myocardial infarction (AMI) has proven benefits. Access to facilities, and physicians, seems to limit the rates of revascularisation in certain areas. The UK has a wide disparity between the north and south. This study suggests that living in the South Bronx area of New York is bad news if you have an AMI. If you are admitted locally, the hospitals have no revascularisation facilities, and even if you are admitted elsewhere, you will still have a 20% lower chance of revascularisation after correcting for socioeconomic factors.

▲ **Fang J**, Alderman MH. Is geography destiny for patients in New York with myocardial infarction? *Am J Med* 2003;**115**:448–53.

CABG more cost effective than angioplasty? ► A spate of trials has shown that there is no mortality difference between coronary artery bypass grafting (CABG) and percutaneous transluminal coronary angioplasty (PTCA) for patients with multivessel coronary disease, except perhaps in diabetic patients. However, PTCA patients suffer more angina and more repeat revascularisation. This paper analyses old data from the BARI study and attempts to assess the influence of stents (not used in the original trial). Although it has multiple assessments for different scenarios, perhaps the best take home message is that if the cost of stenting is low enough (< $900 per stent) or restenosis rate was < 12%, then PTCA and stenting is as cost effective as CABG. It would be better to reassess cost effectiveness prospectively in a randomised controlled trial (as will be done in the CARDia trial comparing PTCA to CABG in diabetic patients).

▲ **Yock CA**, Boothroyd DB, Owens DK, Garber AM, Hlatky MA. Cost-effectiveness of bypass surgery versus stenting in patients with multivessel coronary artery disease. *Am J Med* 2003;**115**:382–9.

If lysis is contraindicated, consider primary angioplasty ► From June 1994 to January 2003, the National Registry of Myocardial Infarction 2, 3, and 4 enrolled 1 799 704 patients with AMI. A total of 19 917 patients with acute ST segment elevation were eligible for immediate revascularisation (IMR) but had thrombolytic contraindications. Of these 19 917 patients, 4705 patients (23.6%) received IMR and 5173 patients (25.9%) died. In-hospital mortality rates in the IMR and non-IMR treated groups in the unadjusted analysis were 11.1% and 30.6% (odds ratio 0.28, 95% CI 0.26 to 0.31). In a further analysis using a propensity matching score to reduce the effects of bias, 3905 patients who received IMR remained at lower risk for in-hospital mortality than 3905 matched patients (10.9% *v* 20.1%, respectively, for a risk reduction of 45.8%; odds ratio 0.48, 95% CI 0.43 to 0.55). These results suggest that using IMR in patients with acute ST segment elevation AMI and contraindications to thrombolytics should be strongly considered.

▲ **Grzybowski M**, Clements EA, Parsons L, Welch R, Tintinalli AT, Ross MA, Zalenski RJ. Mortality benefit of immediate revascularization of acute ST-segment elevation myocardial infarction in patients with contraindications to thrombolytic therapy: a propensity analysis. *JAMA* 2003;**290**:1891–8.

HYPERTENSION

Low birth weight is not as strong a marker of hypertension as being overweight in middle age ► A sample of 3634 people from a birth cohort study of men and women born in Britain in 1946 were included in the analyses. Considering both men and women together, a consistent negative association between birthweight and systolic blood pressure was noted from age 36–53 years, but no evidence was recorded of substantial amplification with age. A 1 kg higher birthweight was associated with a slower mean increase in systolic blood pressure by −0.4 mm Hg (95% CI −1.3 to 0.4; p = 0.3) per 10 year increase in age. Birthweight was not associated with diastolic blood pressure at any age. People from a manual social class in childhood had higher systolic and diastolic blood pressure than did those from a non-manual class. The effect on systolic blood pressure rose with age, by 1.0 mm Hg (95% CI 0.1 to 2.0; p = 0.03) per 10 years, but was largely accounted for by current body mass index, which was an increasingly strong determinant of blood pressure.

▲ **Hardy R**, Kuh D, Langenberg C, Wadsworth MEJ. Birthweight, childhood social class, and change in adult blood pressure in the 1946 British birth cohort. *Lancet* 2003;**362**:1178–83.

Hydralazine has dangers in pregnancy ► Of 21 trials (893 women), eight compared hydralazine with nifedipine and five with labetalol. Hydralazine was associated with more maternal hypotension (odds ratio 3.29, 95% CI 1.50 to 7.23; 13 trials); more caesarean sections (1.30, 95% CI 1.08 to 1.59; 14 trials); more placental abruption (4.17, 95% CI 1.19 to 14.28; five trials); more maternal oliguria (4.00, 95% CI 1.22 to 12.50; three trials); more adverse effects on fetal heart rate (2.04, 95% CI 1.32 to 3.16; 12 trials); and more low Apgar scores at one minute (2.70, 95% CI 1.27 to 5.88; three trials). For all but Apgar scores, analysis by risk difference showed heterogeneity between trials. Hydralazine was associated with more maternal side effects (1.50, 95% CI 1.16 to 1.94; 12 trials) and with less neonatal bradycardia than labetalol (risk difference −0.24, 95% CI −0.42 to −0.06; three trials). Therefore, methyl-DOPA, nifedipine, and labetalol may be better for treating severe hypertension in pregnancy, although solid data are lacking.

▲ **Magee LA**, Cham C, Waterman EJ, Ohlsson A, von Dadelszen P. Hydralazine for treatment of severe hypertension in pregnancy: meta-analysis. *BMJ* 2003;**327**:955.

Aggressive treatment of diabetes mellitus to control hypertension ► Data from UKPDS suggests that hypertension control is more important than glycaemic control for long term prevention of renal injury in patients with diabetes mellitus. However, hypertension and end stage renal failure are reduced long term by good sugar control. In long term follow up (eight years) of the diabetes control and complication study (DCCT), new cases of microalbuminuria occurred in 39 (6.8%) of the participants originally assigned to the intensive treatment group versus 87 (15.8%) of those assigned to the conventional treatment group, for a 59% (95% CI 39% to 73%) reduction in odds. New cases of clinical albuminuria occurred in 9 (1.4%) of the original intensive treatment group versus 59 (9.4%) of those in the original conventional treatment group, representing an 84% reduction in odds (95% CI 67% to 92%). Fewer cases of hypertension (prevalence at year 8, 29.9% *v* 40.3%; $p < 0.001$) developed in the original intensive treatment group.

▲ **Writing Team for the Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications Research Group.** Sustained effect of intensive treatment of type 1 diabetes mellitus on development and progression of diabetic nephropathy: the epidemiology of diabetes interventions and complications (EDIC) study. *JAMA* 2003;**290**:2159–67.

GENERAL CARDIOLOGY

Ximelagatran: warfarin without the blood tests ► In two studies, the efficacy of oral ximelagatran, administered starting the morning after total knee replacement, was superior to that of warfarin for prevention of venous thromboembolism, and appeared better than placebo when given long term after a six month course of warfarin for proven deep vein thrombosis had finished. Data on anticoagulation in atrial fibrillation is awaited eagerly, although early results look very promising. A single daily dose of a warfarin substitute without the need for international normalised ratio (INR) measurements now appears possible.

▲ **Francis CW**, Berkowitz SD, Comp PC, Lieberman JR, Ginsberg JS, Paiement G, Peters GR, Roth AW, McElhattan J, Colwell CW, for the EXULT A Study Group. Comparison of ximelagatran with warfarin for the prevention of venous thromboembolism after total knee replacement. *N Engl J Med* 2003;**349**:1703–12.

▲ **Schulman S**, Wåhlander K, Lundström T, Billing Clason S, Eriksson H, for the THRIVE III Investigators. Secondary prevention of venous thromboembolism with the oral direct thrombin inhibitor ximelagatran. *N Engl J Med* 2003;**349**:1713–21.

Cardiac complications double the length of stay for non-cardiac surgery ► In a study of nearly 4000 patients undergoing a variety of vascular and non-vascular general surgery, the rate of cardiac complications was 2%, most commonly AMI and pulmonary oedema. The rate of AMI was lower than previously reported, but these may have been lower risk patients. Length of stay more than doubled when cardiac complications occurred (11 days *v* 4 days without complications). The rate of non-cardiac complications also increased in those with cardiac complications (48% *v* 13%; odds ratio 6.4, 95% CI 3.9 to 10.6). Measures such as preoperative work-up and perioperative β blockade have been shown to reduce the risk.

▲ **Fleischmann KE**, Goldman L, Young B, Lee TH. Association between cardiac and noncardiac complications in patients undergoing noncardiac surgery: outcomes and effects on length of stay. *Am J Med* 2003;**115**:7515–20.

Progression of carotid stenosis is a marker for CVA risk ► The number of asymptomatic patients whose carotid artery is scanned using duplex ultrasound is increasing. A total of 1701 carotid arteries from 1004 asymptomatic patients were prospectively followed by duplex scanning. Carotid arteries treated with endarterectomy were excluded. The baseline degree of carotid stenosis was less than 50% of artery diameter in 75% of patients. The annual rates of ipsilateral transient ischaemic attack (TIA) and cerebrovascular accident (CVA) were each 3.3%. When categorised with respect to carotid artery, the annual rates of ipsilateral TIAs and CVAs were 2.0% and 2.1%, respectively. In multivariable modelling, the progression of carotid stenosis was a highly significant predictor of the composite outcome TIA and CVA (risk ratio (RR) 1.68; $p < 0.001$) and of CVA alone (RR 1.78, $p < 0.001$). However, baseline stenosis was found to be a significant predictor of time to the combined outcome (RR 1.29; $p = 0.01$) but not of CVA alone. Clinical risk factors did not add any additional predictive information.

▲ **Bertges DJ**, Muluk V, Whittle J, Kelley M, MacPherson DS, Muluk SC. Relevance of carotid stenosis progression as a predictor of ischemic neurological outcomes. *Arch Intern Med* 2003;**163**:2285–9.

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